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FIG.1

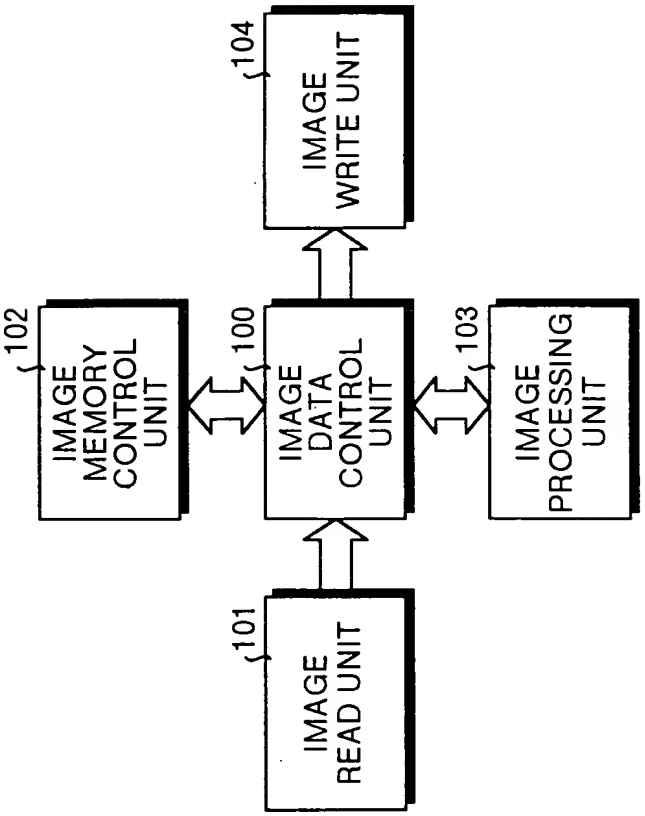

FIG.2

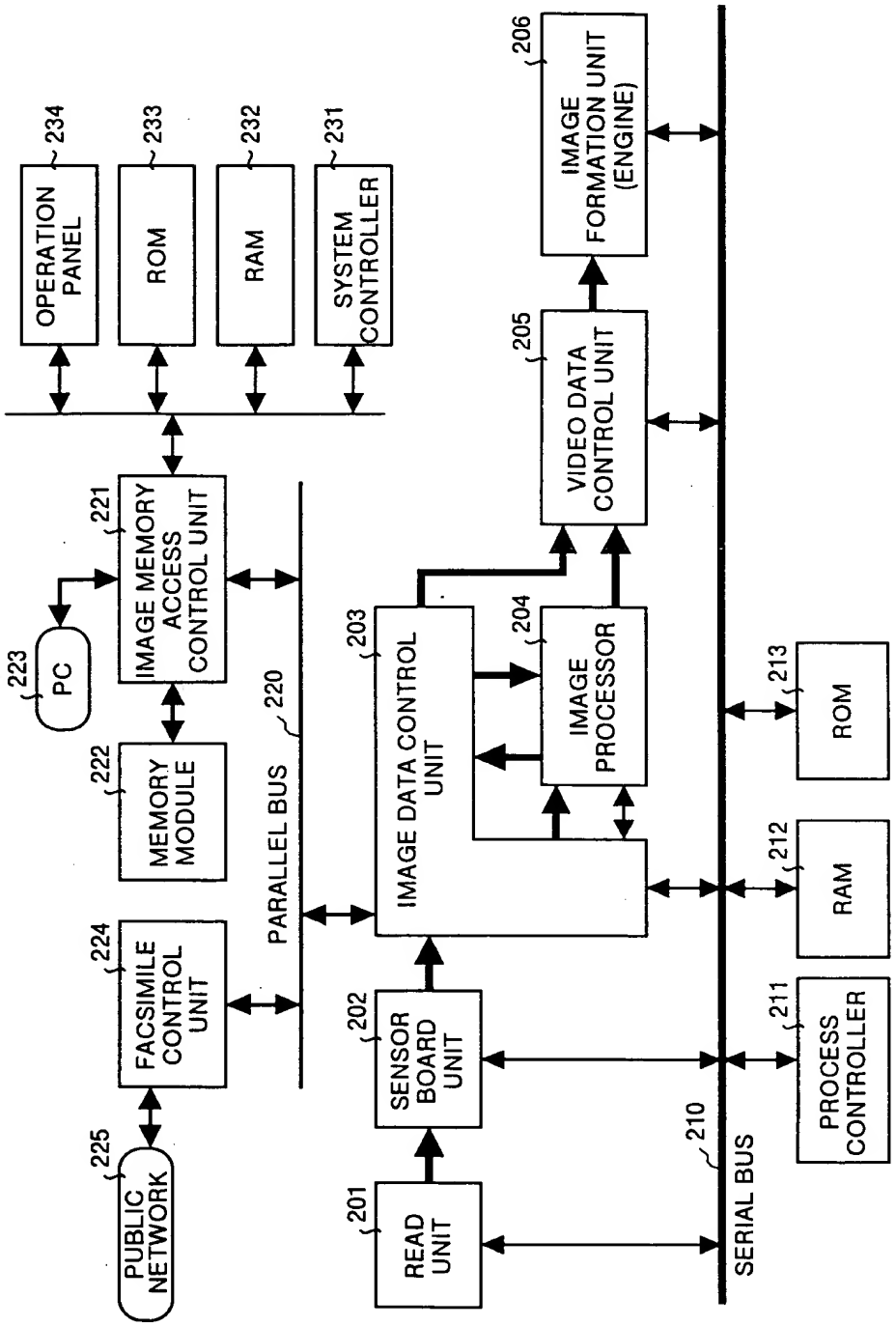
OPERATION PANEL
234
ROM
233
RAM
232
SYSTEM CONTROLLER
231
IMAGE FORMATION UNIT (ENGINE)
206
VIDEO DATA CONTROL UNIT
205
IMAGE MEMORY ACCESS CONTROL UNIT
221
PC
223
MEMORY MODULE
222
PARALLEL BUS
220
IMAGE DATA CONTROL UNIT
203
IMAGE PROCESSOR
204
ROM
213
FACSIMILE CONTROL UNIT
224
RAM
212
SENSOR BOARD UNIT
202
PROCESS CONTROLLER
211
PUBLIC NETWORK
225
READ UNIT
201
SERIAL BUS
210

FIG.3

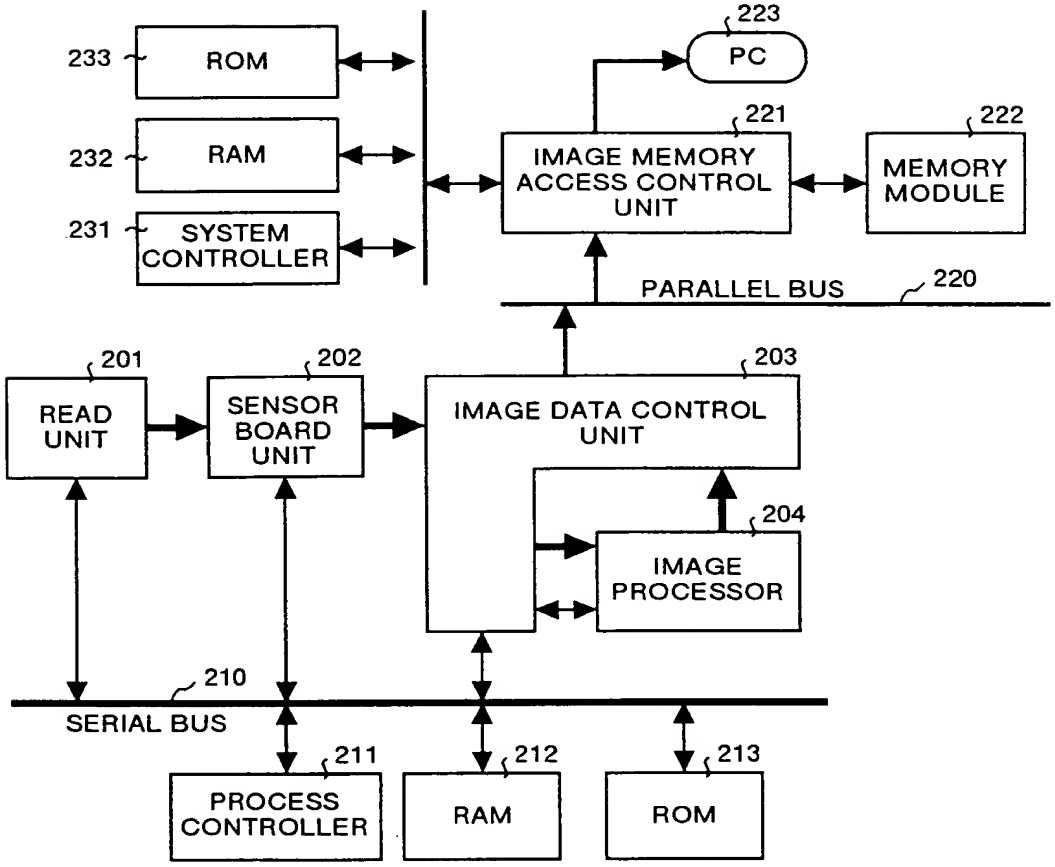
233
ROM
232
RAM
231
SYSTEM CONTROLLER
223
PC
221
IMAGE MEMORY ACCESS CONTROL UNIT
222
MEMORY MODULE
PARALLEL BUS
220
201
READ UNIT
202
SENSOR BOARD UNIT
203
IMAGE DATA CONTROL UNIT
204
IMAGE PROCESSOR
210
SERIAL BUS
211
PROCESS CONTROLLER
212
RAM
213
ROM

FIG.4

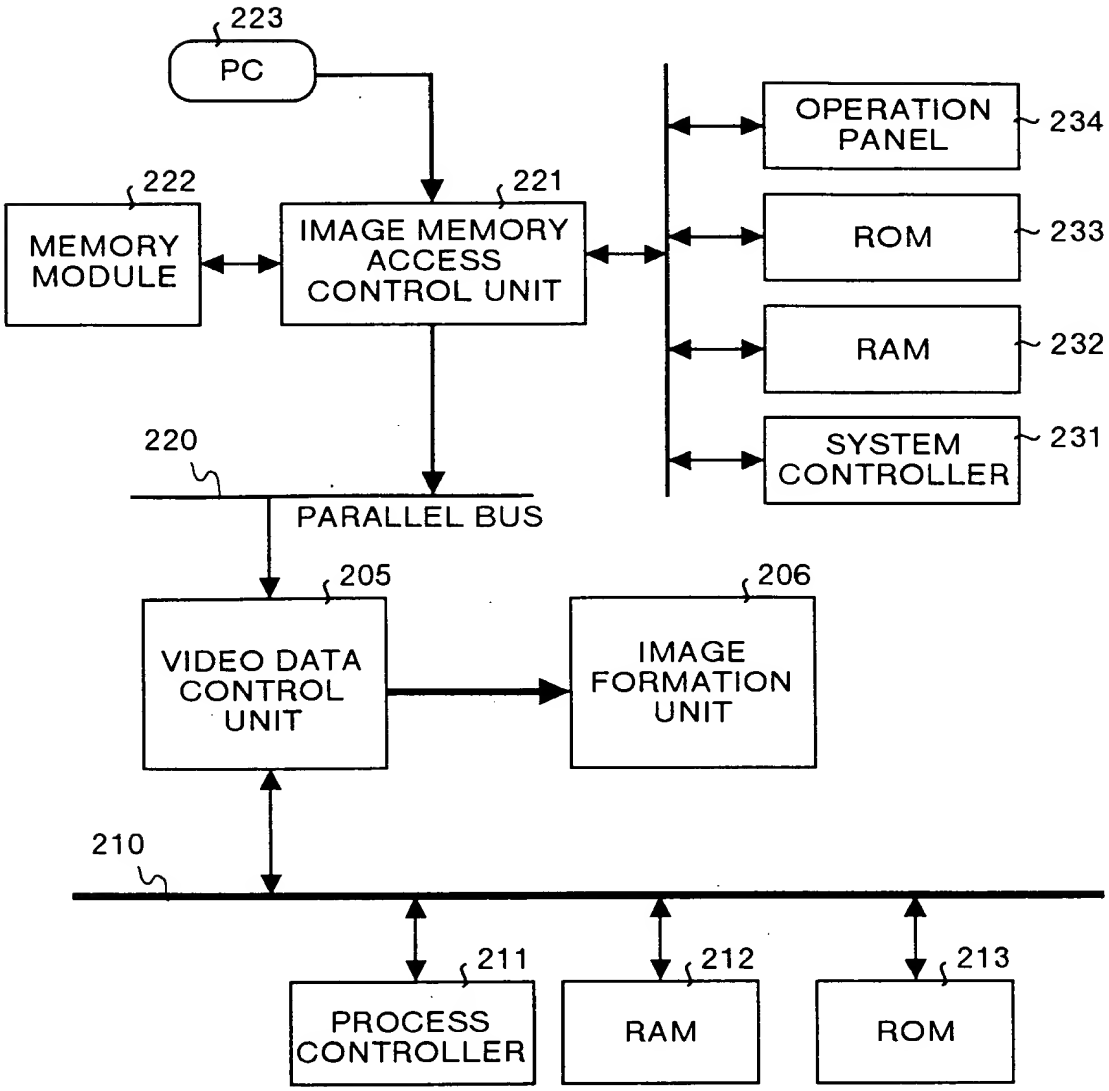
223
PC
222
MEMORY MODULE
221
IMAGE MEMORY ACCESS CONTROL UNIT
OPERATION PANEL
234
ROM
233
RAM
232
SYSTEM CONTROLLER
231
220
PARALLEL BUS
205
VIDEO DATA CONTROL UNIT
206
IMAGE FORMATION UNIT
210
211
PROCESS CONTROLLER
212
RAM
213
ROM

FIG.5

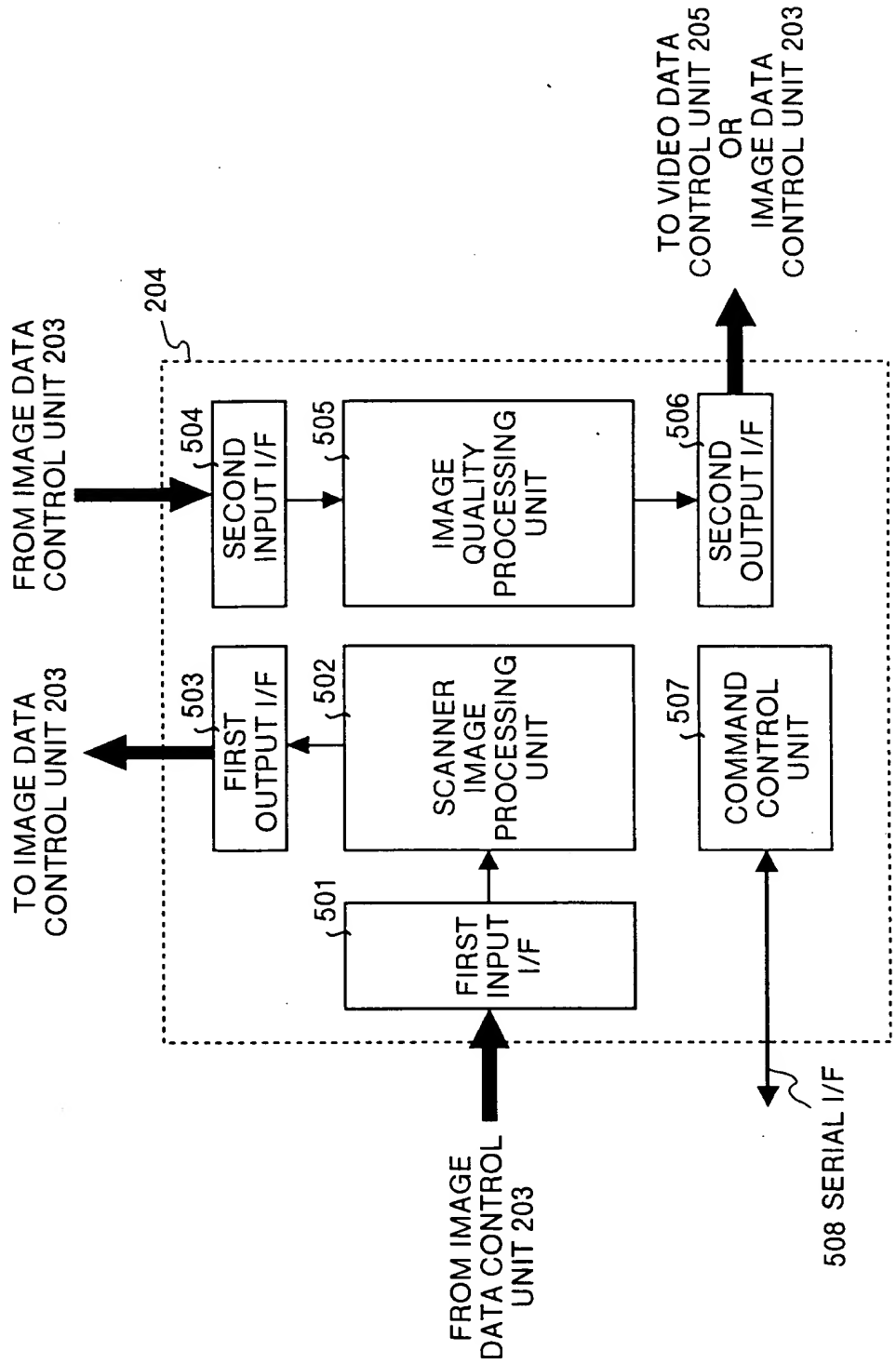
FROM IMAGE DATA CONTROL UNIT 203
204
TO VIDEO DATA CONTROL UNIT 205 OR IMAGE DATA CONTROL UNIT 203
504 SECOND INPUT I/F
505 IMAGE QUALITY PROCESSING UNIT
506 SECOND OUTPUT I/F
TO IMAGE DATA CONTROL UNIT 203
503 FIRST OUTPUT I/F
502 SCANNER IMAGE PROCESSING UNIT
507 COMMAND CONTROL UNIT
501 FIRST INPUT I/F
FROM IMAGE DATA CONTROL UNIT 203
508 SERIAL I/F

FIG.6

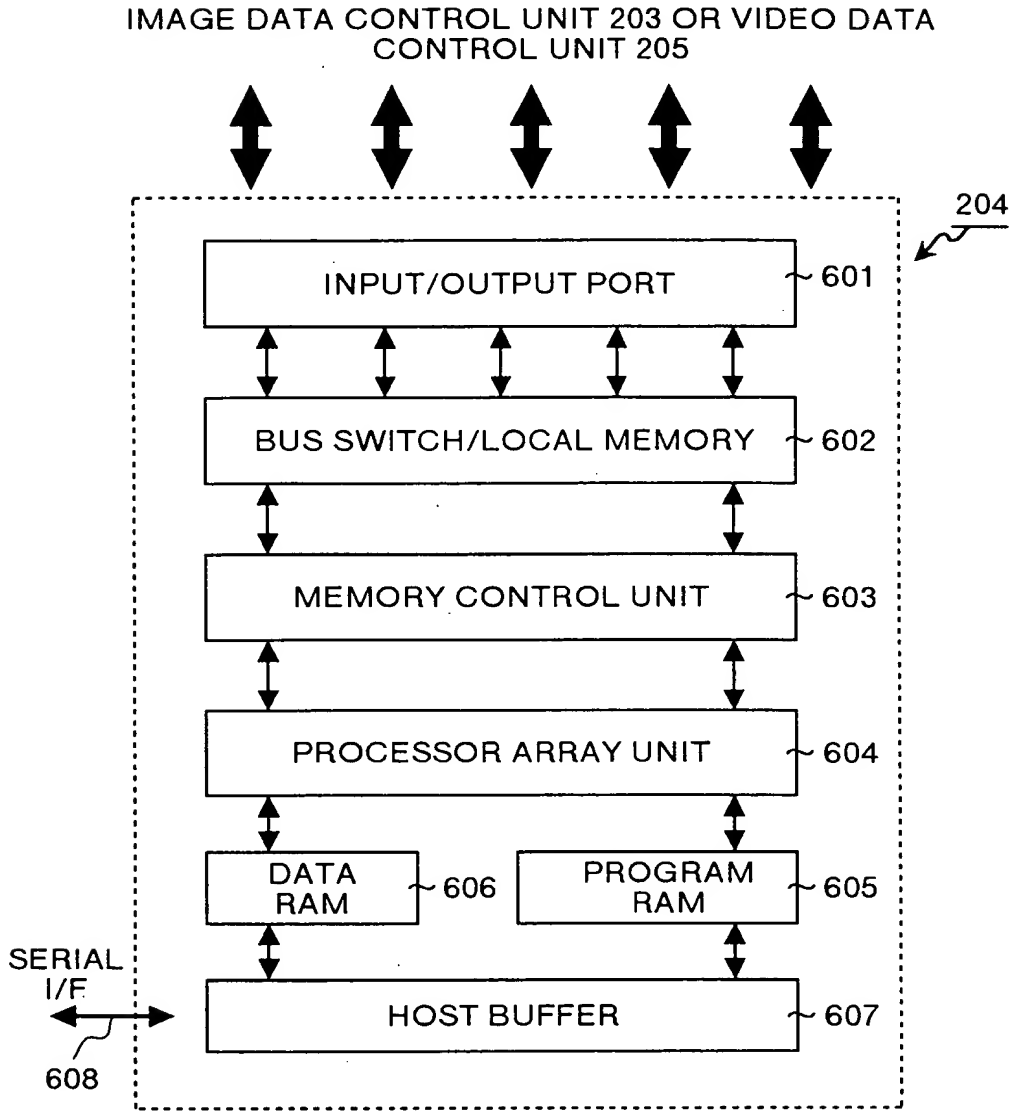
IMAGE DATA CONTROL UNIT 203 OR VIDEO DATA CONTROL UNIT 205
204
INPUT/OUTPUT PORT
601
BUS SWITCH/LOCAL MEMORY
602
MEMORY CONTROL UNIT
603
PROCESSOR ARRAY UNIT
604
DATA RAM
606
PROGRAM RAM
605
HOST BUFFER
607
SERIAL I/F
608

FIG.7

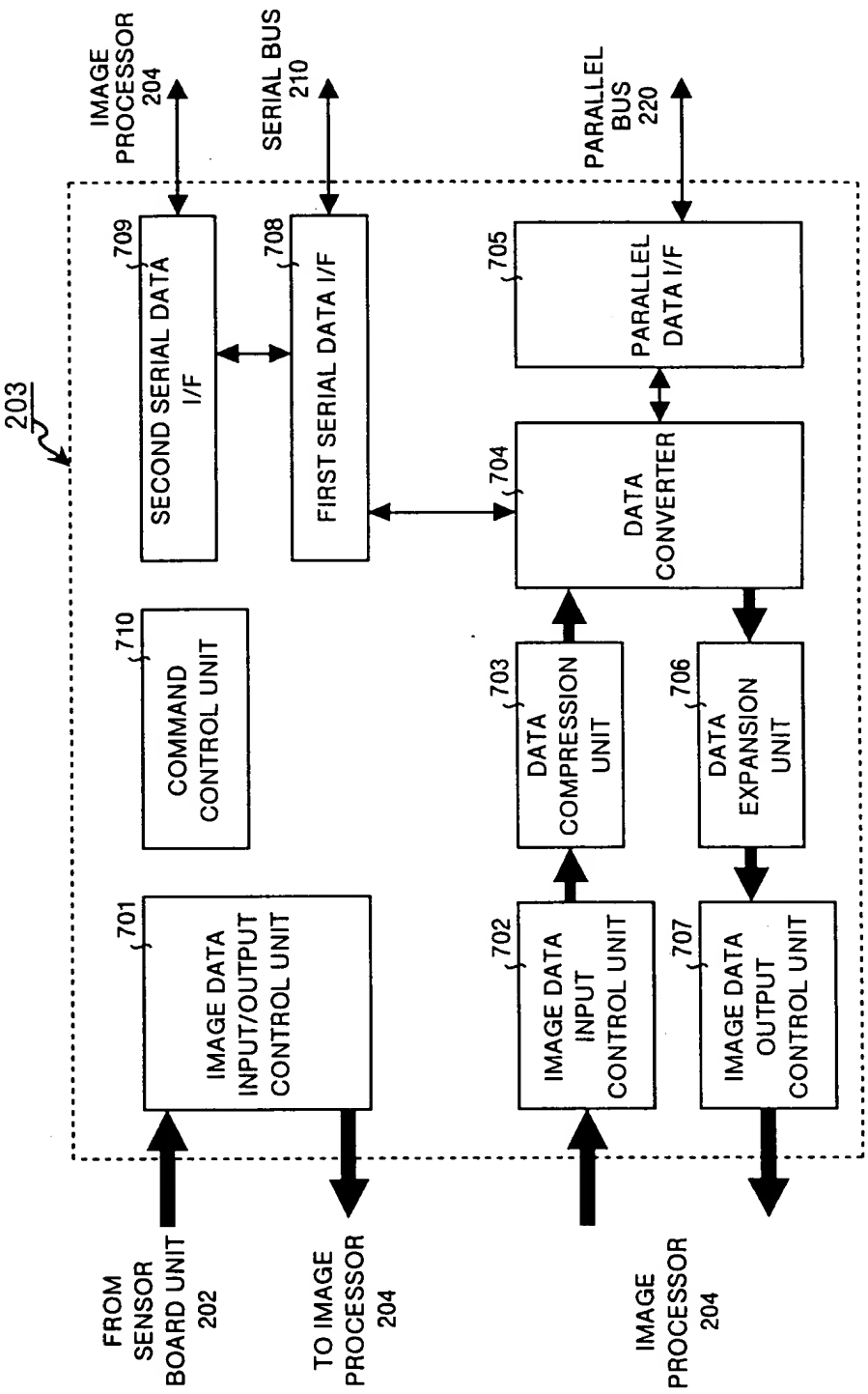
IMAGE PROCESSOR 204
SERIAL BUS 210
PARALLEL BUS 220
203
709
SECOND SERIAL DATA I/F
708
FIRST SERIAL DATA I/F
705
PARALLEL DATA I/F
704
DATA CONVERTER
710
COMMAND CONTROL UNIT
703
DATA COMPRESSION UNIT
706
DATA EXPANSION UNIT
701
IMAGE DATA INPUT/OUTPUT CONTROL UNIT
702
IMAGE DATA INPUT CONTROL UNIT
707
IMAGE DATA OUTPUT CONTROL UNIT
FROM SENSOR BOARD UNIT 202
TO IMAGE PROCESSOR 204
IMAGE PROCESSOR 204

FIG.8

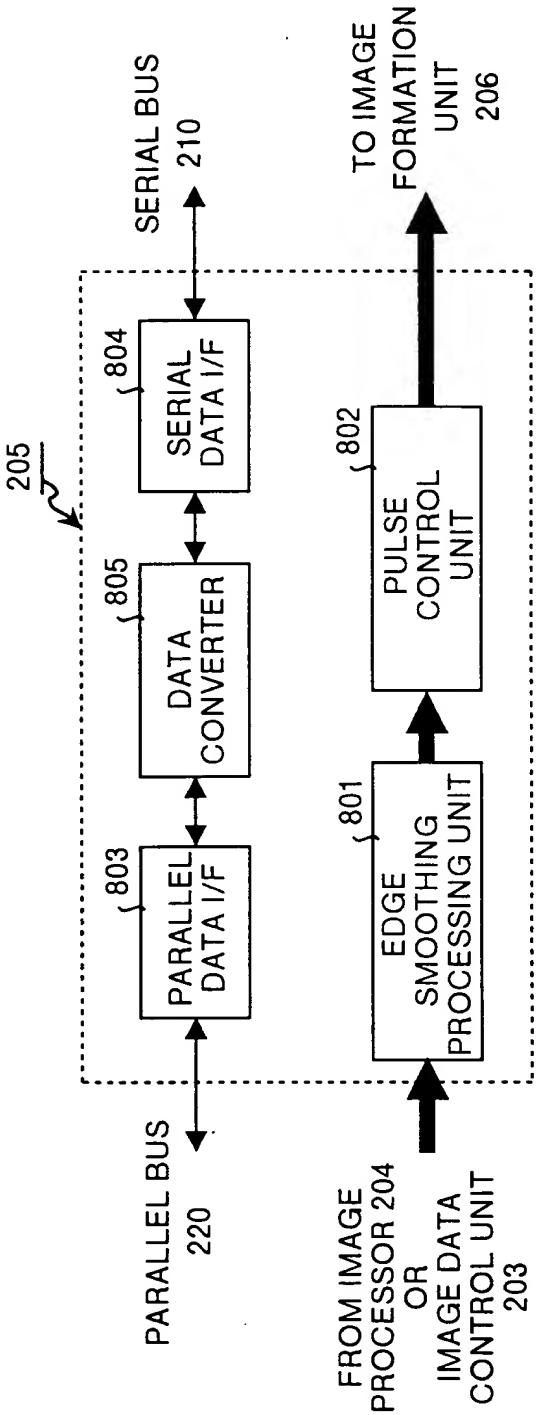
205
SERIAL BUS
210
TO IMAGE
FORMATION
UNIT
206
804
SERIAL
DATA I/F
805
DATA
CONVERTER
803
PARALLEL
DATA I/F
802
PULSE
CONTROL
UNIT
801
EDGE
SMOOTHING
PROCESSING UNIT
PARALLEL BUS
220
FROM IMAGE
PROCESSOR 204
OR
IMAGE DATA
CONTROL UNIT
203

FIG.9

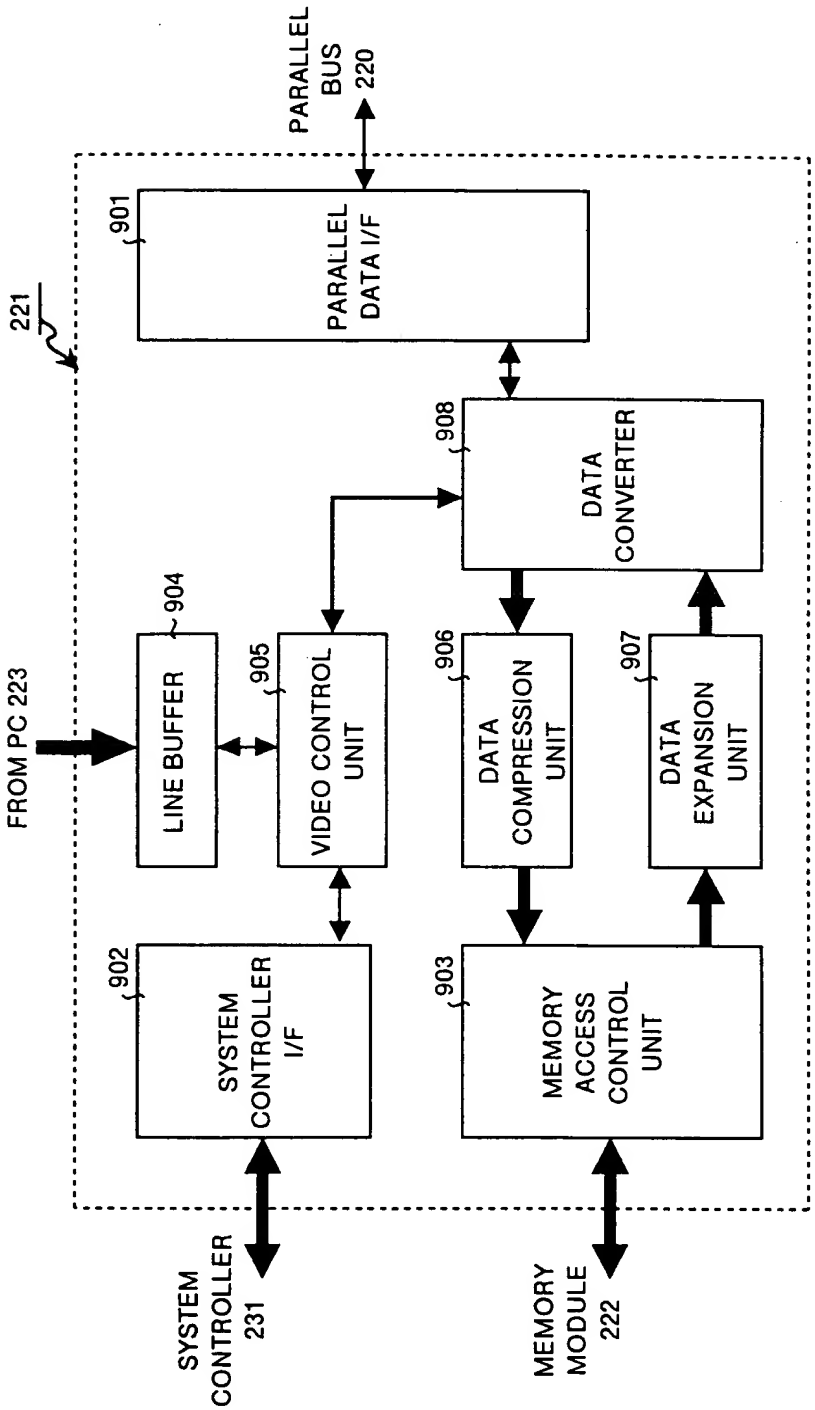
PARALLEL BUS 220
221
901
PARALLEL DATA I/F
908
DATA CONVERTER
FROM PC 223
904
LINE BUFFER
905
VIDEO CONTROL UNIT
906
DATA COMPRESSION UNIT
907
DATA EXPANSION UNIT
902
SYSTEM CONTROLLER I/F
903
MEMORY ACCESS CONTROL UNIT
SYSTEM CONTROLLER 231
MEMORY MODULE 222

FIG.10

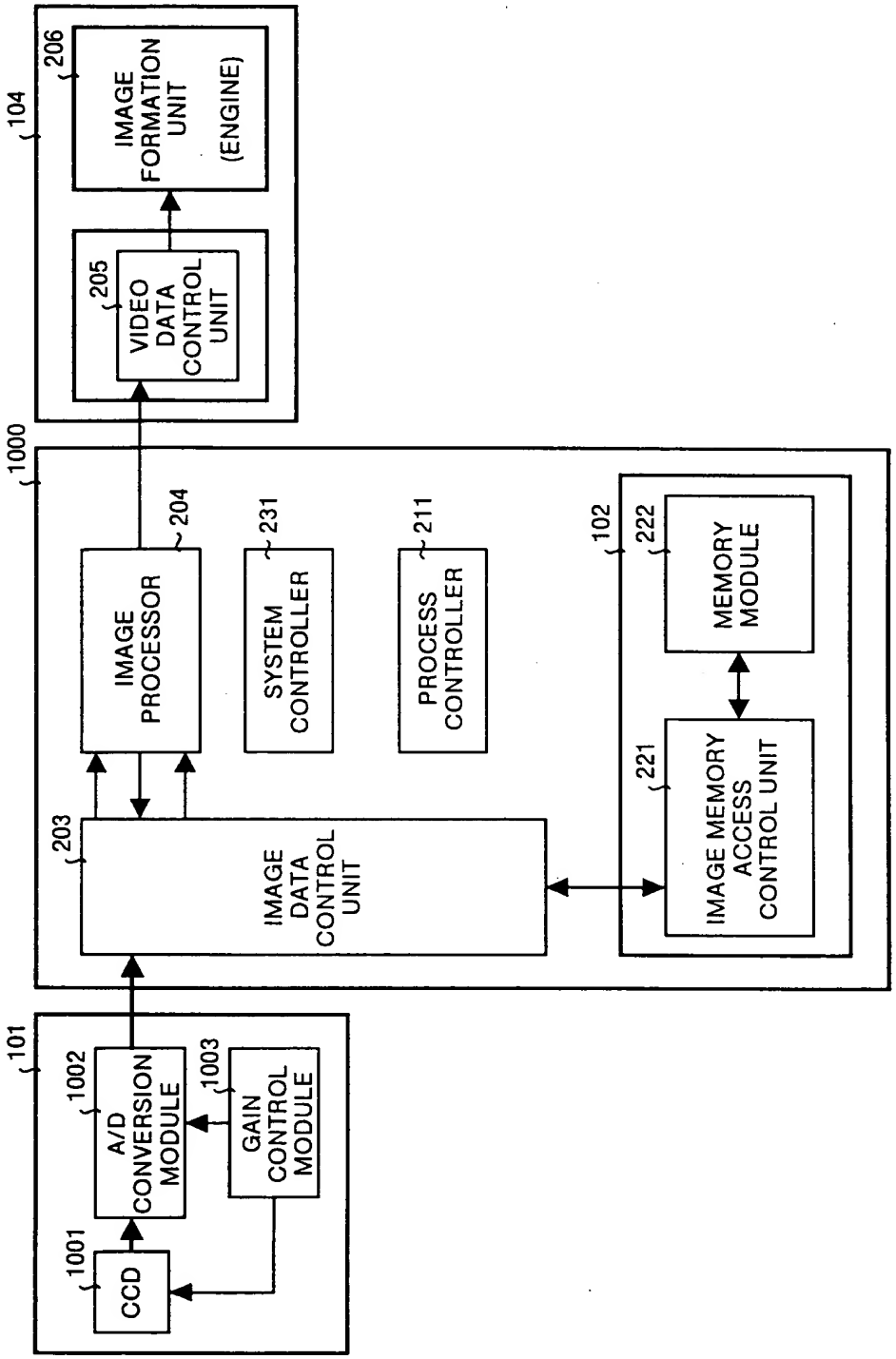
101
1001
CCD
1002
A/D CONVERSION MODULE
1003
GAIN CONTROL MODULE
1000
203
IMAGE DATA CONTROL UNIT
204
IMAGE PROCESSOR
231
SYSTEM CONTROLLER
211
PROCESS CONTROLLER
102
221
IMAGE MEMORY ACCESS CONTROL UNIT
222
MEMORY MODULE
104
205
VIDEO DATA CONTROL UNIT
206
IMAGE FORMATION UNIT (ENGINE)

FIG.11

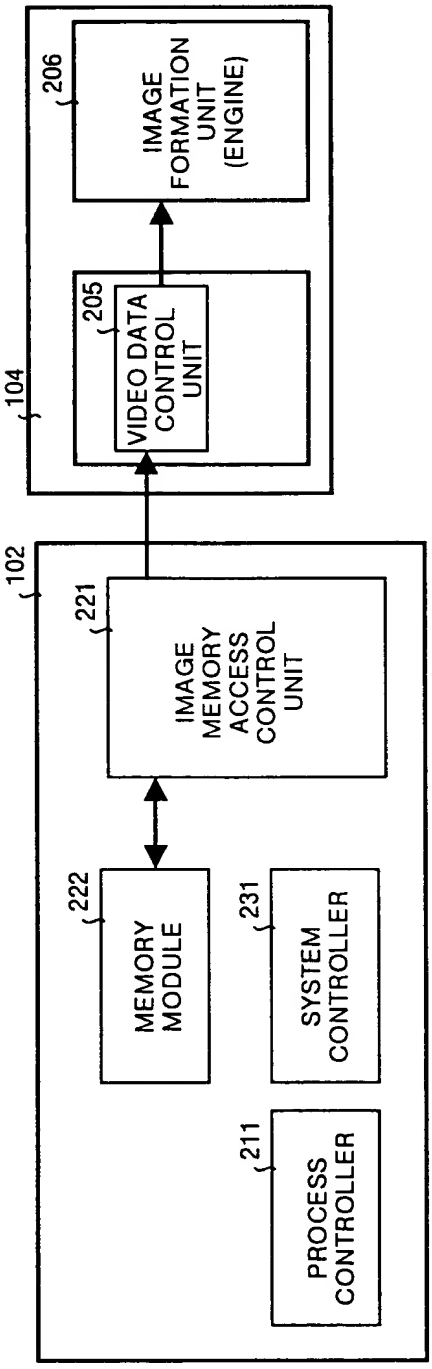
102
104
206
IMAGE FORMATION UNIT (ENGINE)
205
VIDEO DATA CONTROL UNIT
221
IMAGE MEMORY ACCESS CONTROL UNIT
222
MEMORY MODULE
231
SYSTEM CONTROLLER
211
PROCESS CONTROLLER

FIG.12

		COLUMN				
		j-2	j-1	j	j+1	j+2
ROW	i-2	A	B	C	D	E
	i-1	F	G	H	I	J
	i	K	L	M	N	O
	i+1	P	Q	R	S	T
	i+2	U	V	W	X	Y

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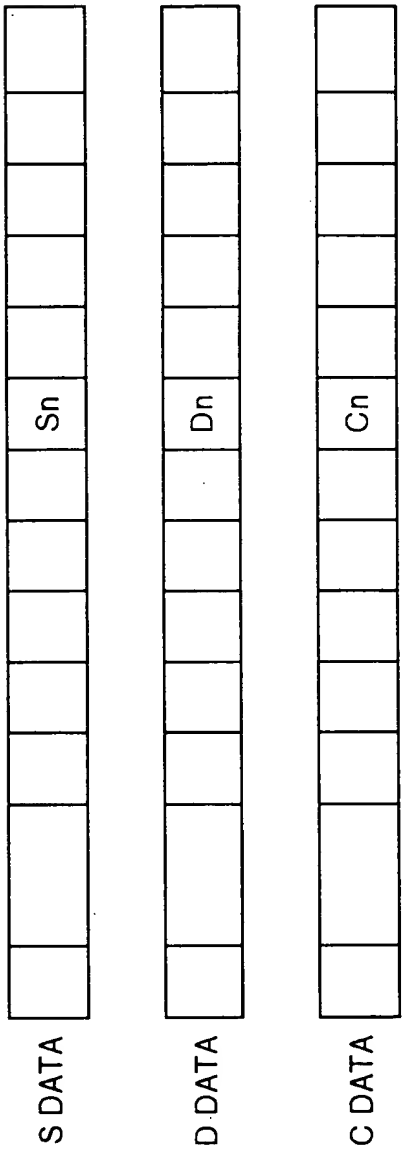
FIG.13



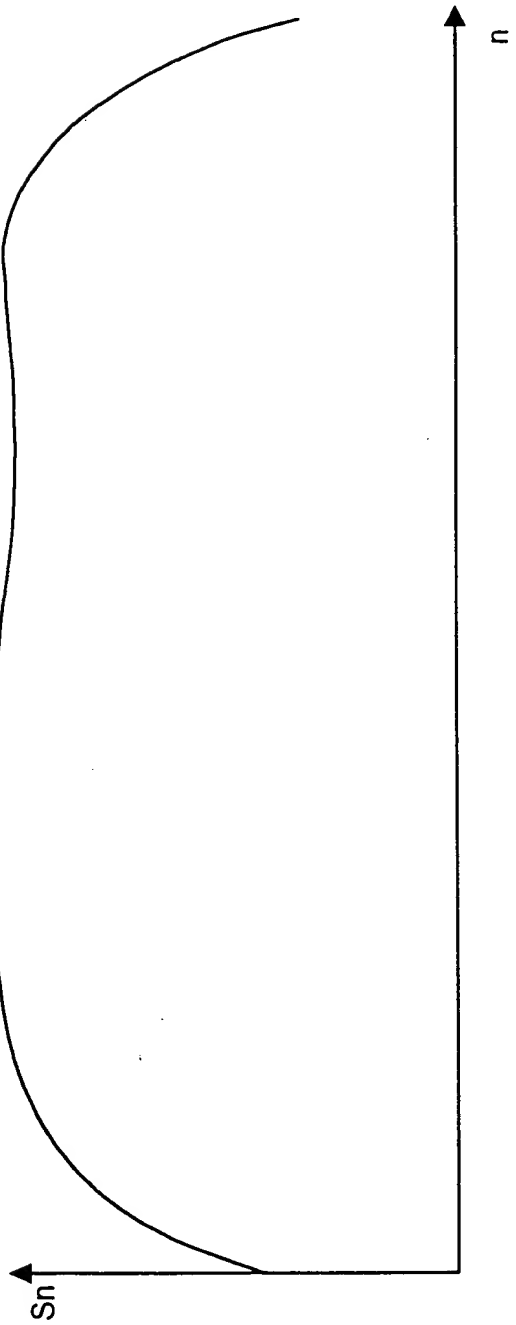


FIG.14

FIG.15

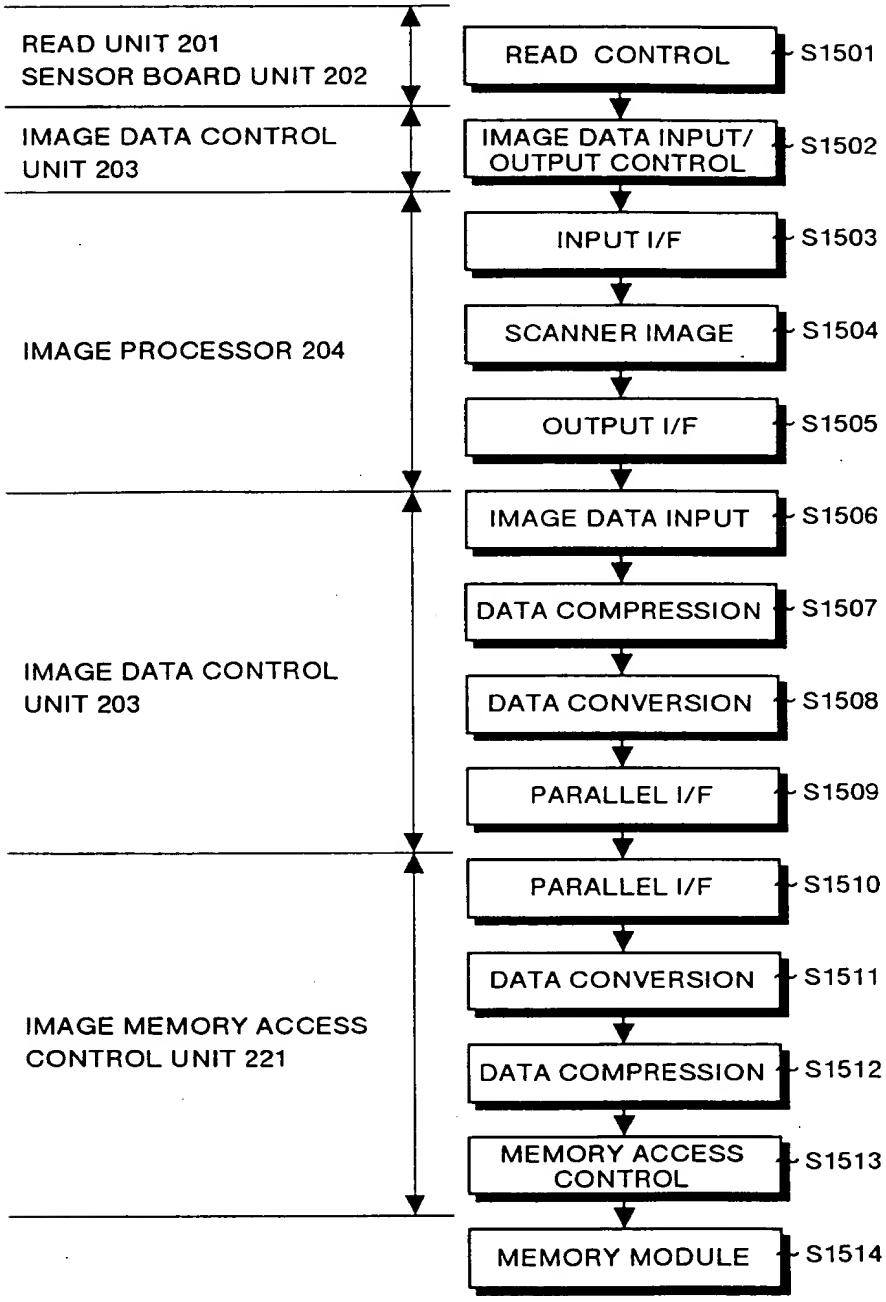

READ UNIT 201
SENSOR BOARD UNIT 202
IMAGE DATA CONTROL UNIT 203
IMAGE PROCESSOR 204
IMAGE DATA CONTROL UNIT 203
IMAGE MEMORY ACCESS CONTROL UNIT 221
READ CONTROL
S1501
IMAGE DATA INPUT/ OUTPUT CONTROL
S1502
INPUT I/F
S1503
SCANNER IMAGE
S1504
OUTPUT I/F
S1505
IMAGE DATA INPUT
S1506
DATA COMPRESSION
S1507
DATA CONVERSION
S1508
PARALLEL I/F
S1509
PARALLEL I/F
S1510
DATA CONVERSION
S1511
DATA COMPRESSION
S1512
MEMORY ACCESS CONTROL
S1513
MEMORY MODULE
S1514

FIG.16

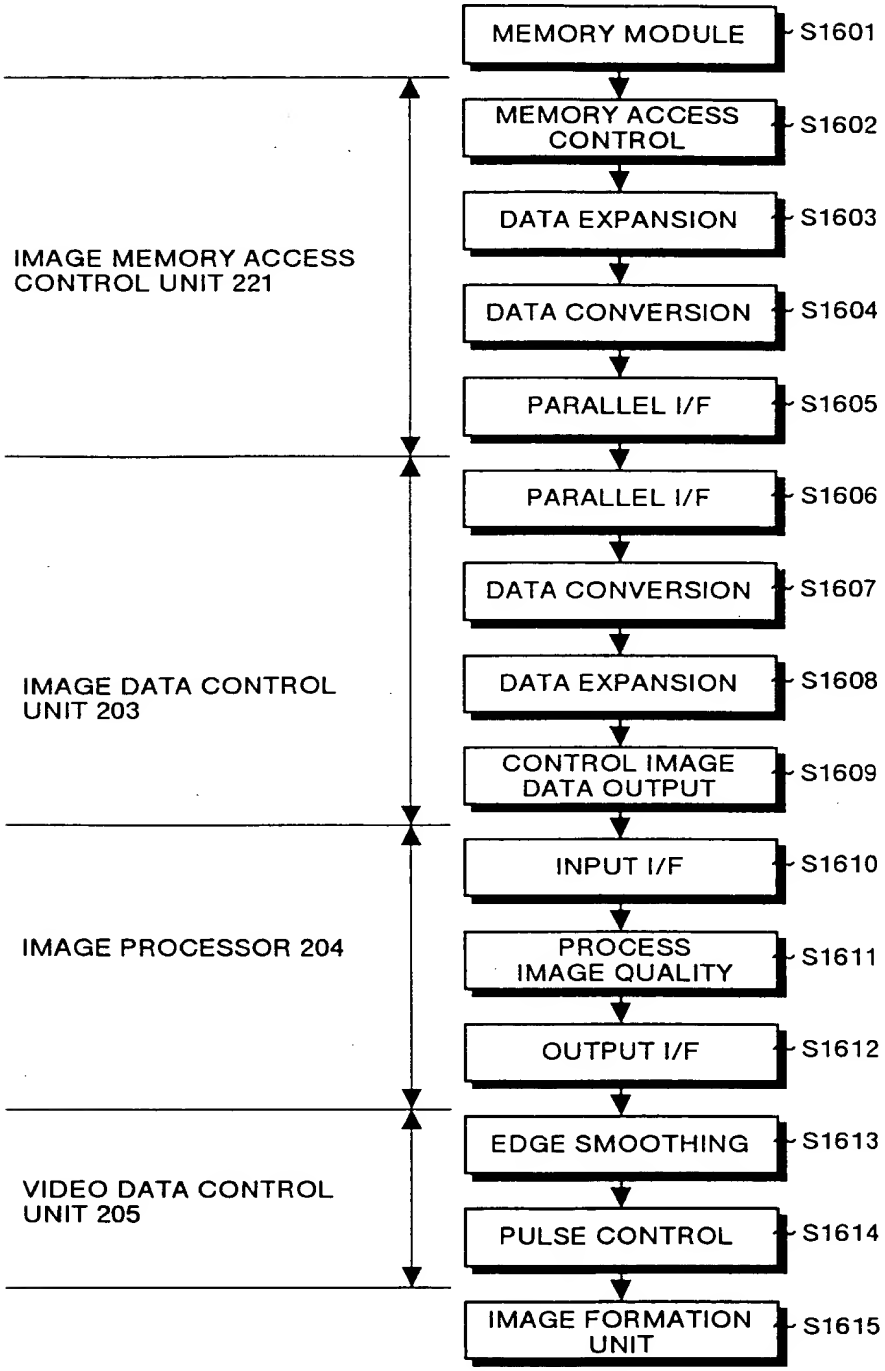

MEMORY MODULE
S1601
MEMORY ACCESS CONTROL
S1602
DATA EXPANSION
S1603
DATA CONVERSION
S1604
PARALLEL I/F
S1605
IMAGE MEMORY ACCESS CONTROL UNIT 221
PARALLEL I/F
S1606
DATA CONVERSION
S1607
DATA EXPANSION
S1608
CONTROL IMAGE DATA OUTPUT
S1609
IMAGE DATA CONTROL UNIT 203
INPUT I/F
S1610
PROCESS IMAGE QUALITY
S1611
OUTPUT I/F
S1612
IMAGE PROCESSOR 204
EDGE SMOOTHING
S1613
PULSE CONTROL
S1614
IMAGE FORMATION UNIT
S1615
VIDEO DATA CONTROL UNIT 205

FIG.17

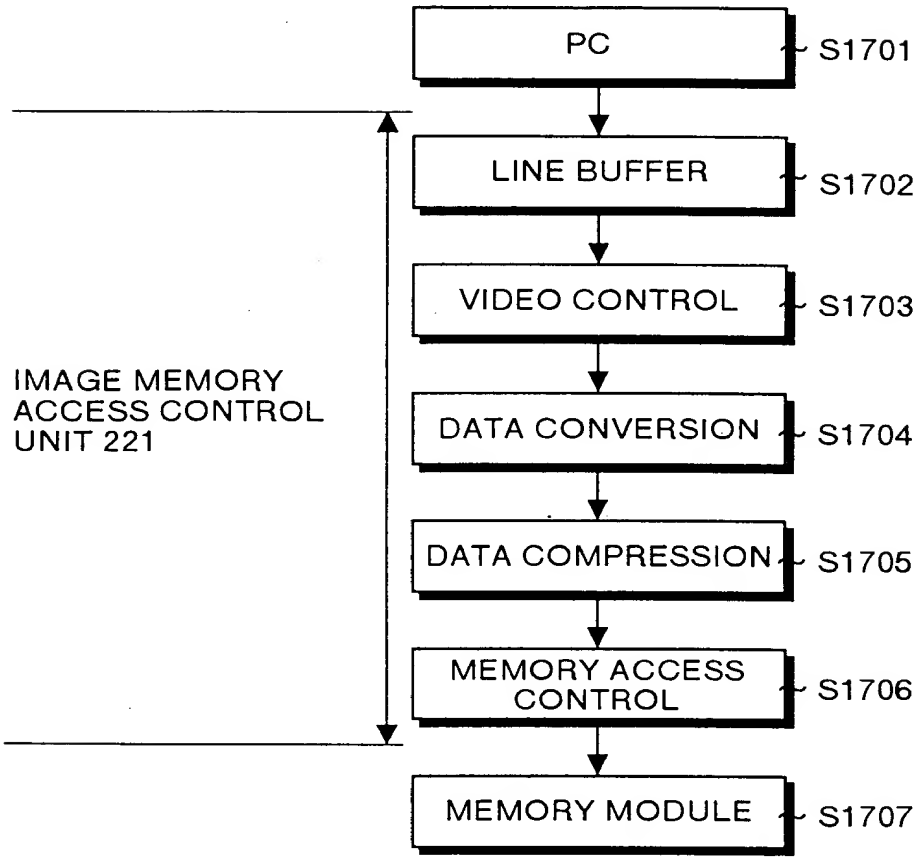

PC
S1701
LINE BUFFER
S1702
VIDEO CONTROL
S1703
IMAGE MEMORY ACCESS CONTROL UNIT 221
DATA CONVERSION
S1704
DATA COMPRESSION
S1705
MEMORY ACCESS CONTROL
S1706
MEMORY MODULE
S1707

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FIG.18

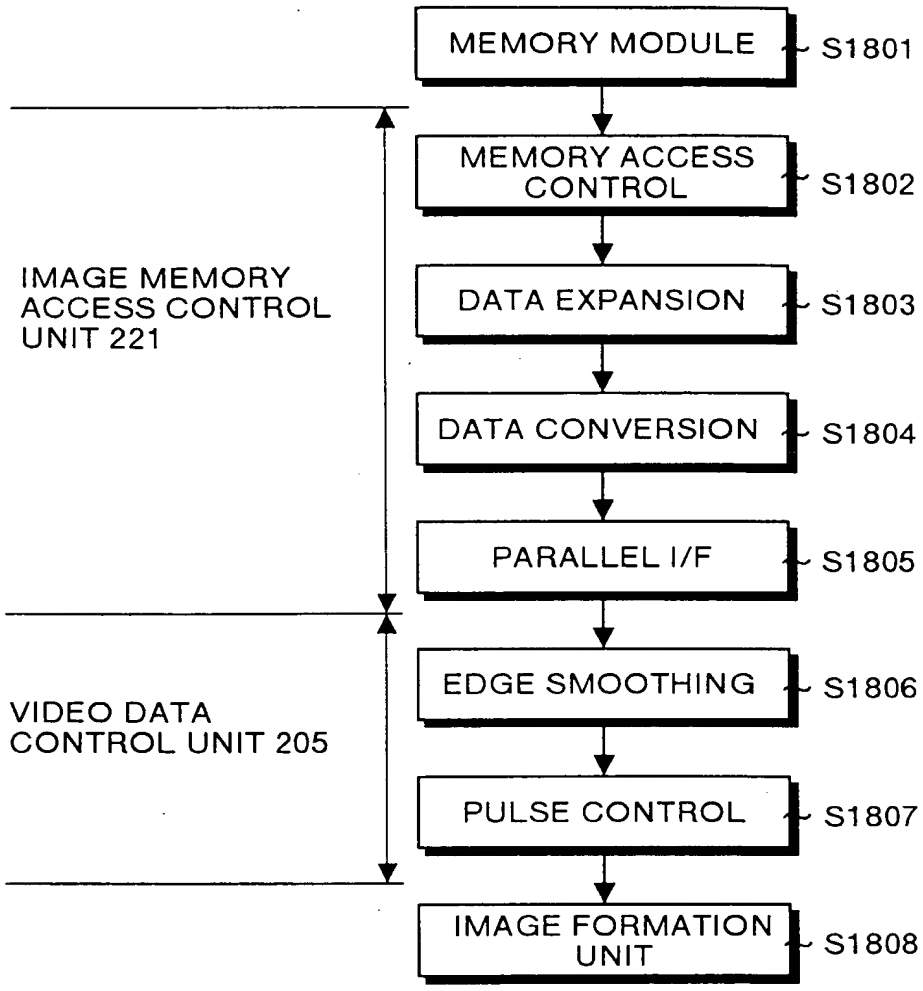


FIG.19

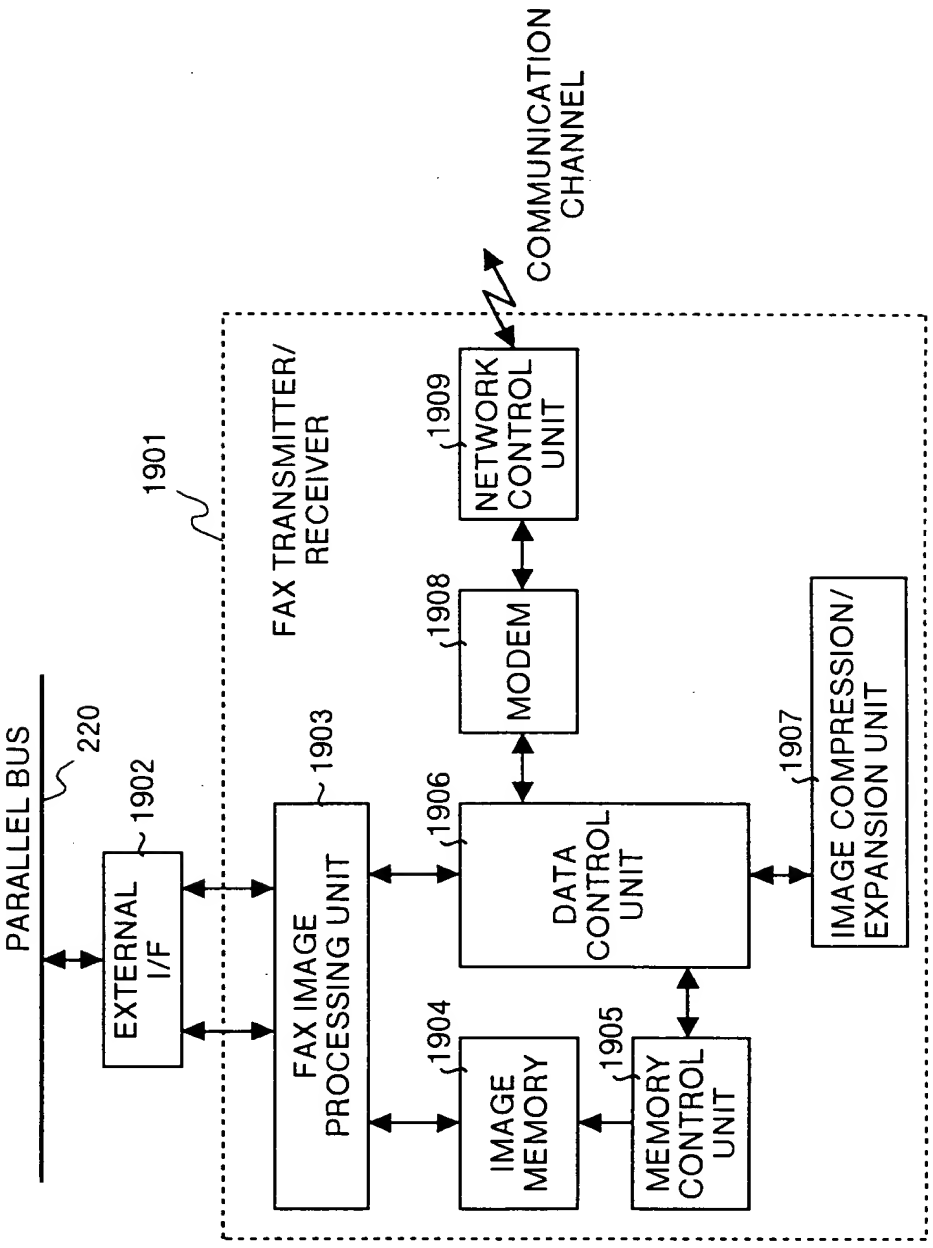

COMMUNICATION CHANNEL
1901
FAX TRANSMITTER/ RECEIVER
1909
NETWORK CONTROL UNIT
1908
MODEM
1907
IMAGE COMPRESSION/ EXPANSION UNIT
PARALLEL BUS
220
1902
EXTERNAL I/F
1903
FAX IMAGE PROCESSING UNIT
1906
DATA CONTROL UNIT
1904
IMAGE MEMORY
1905
MEMORY CONTROL UNIT

FIG.20

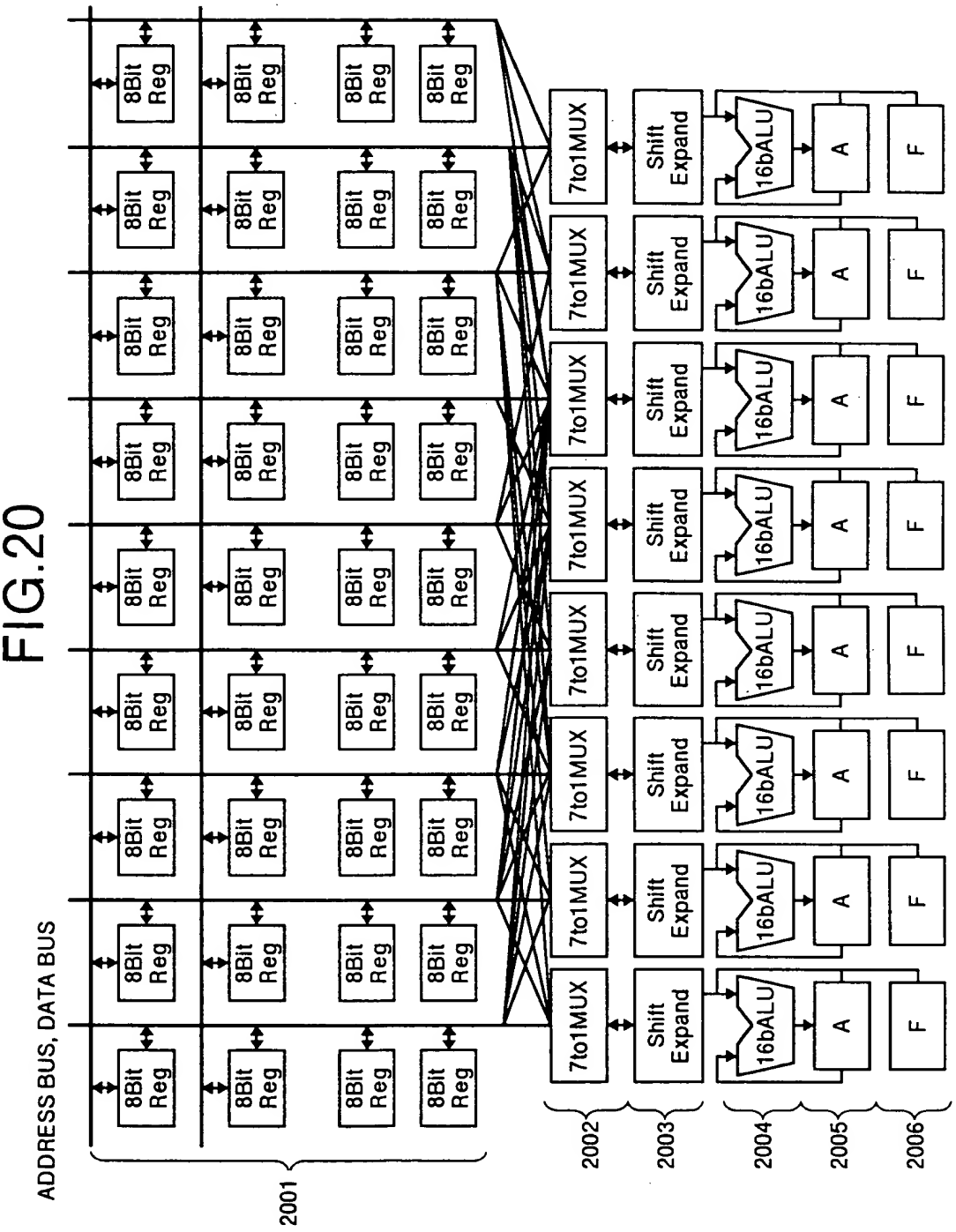

ADDRESS BUS, DATA BUS
8Bit Reg
7to1MUX
Shift Expand
16bALU
A
F
2001
2002
2003
2004
2005
2006

FIG.21

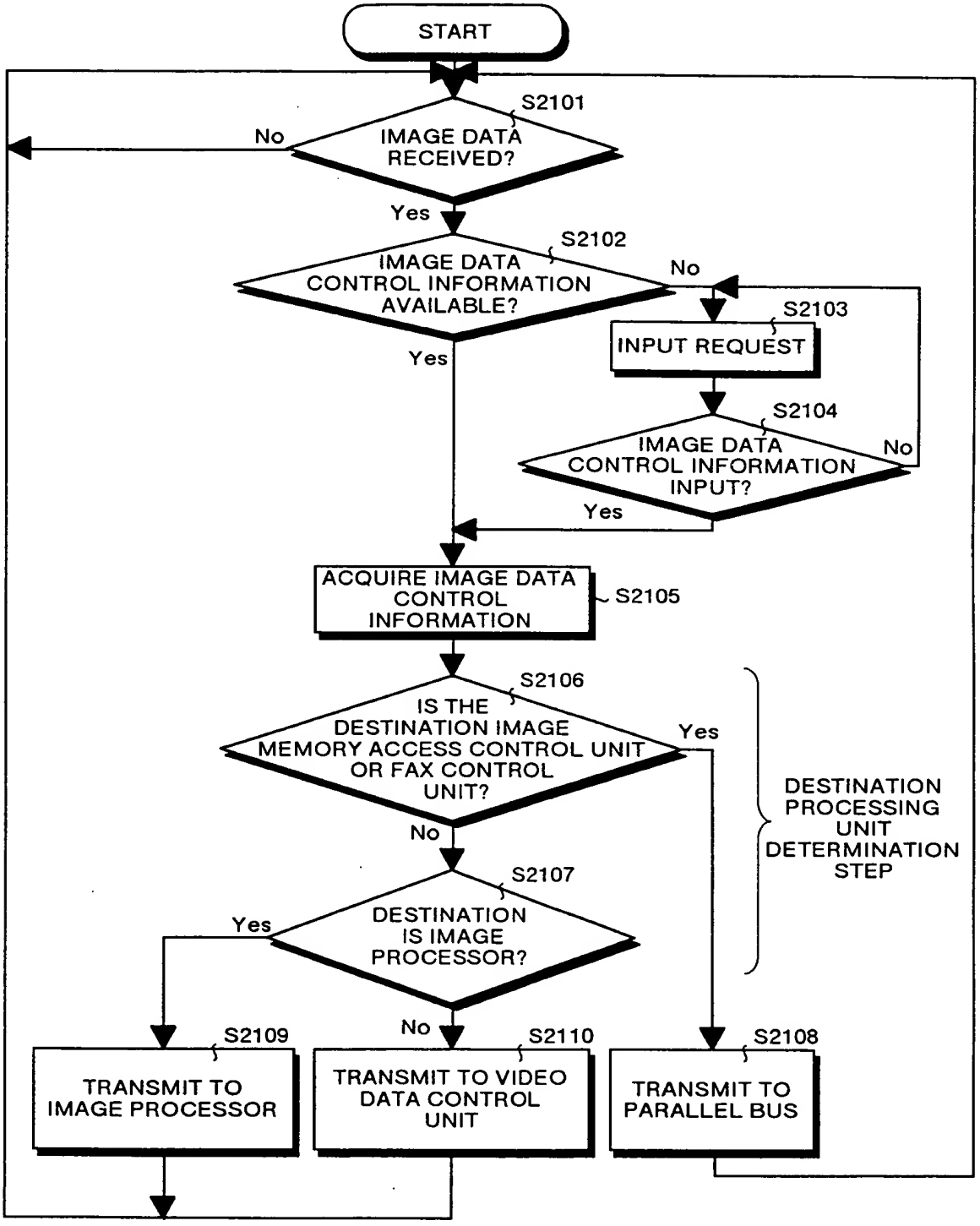
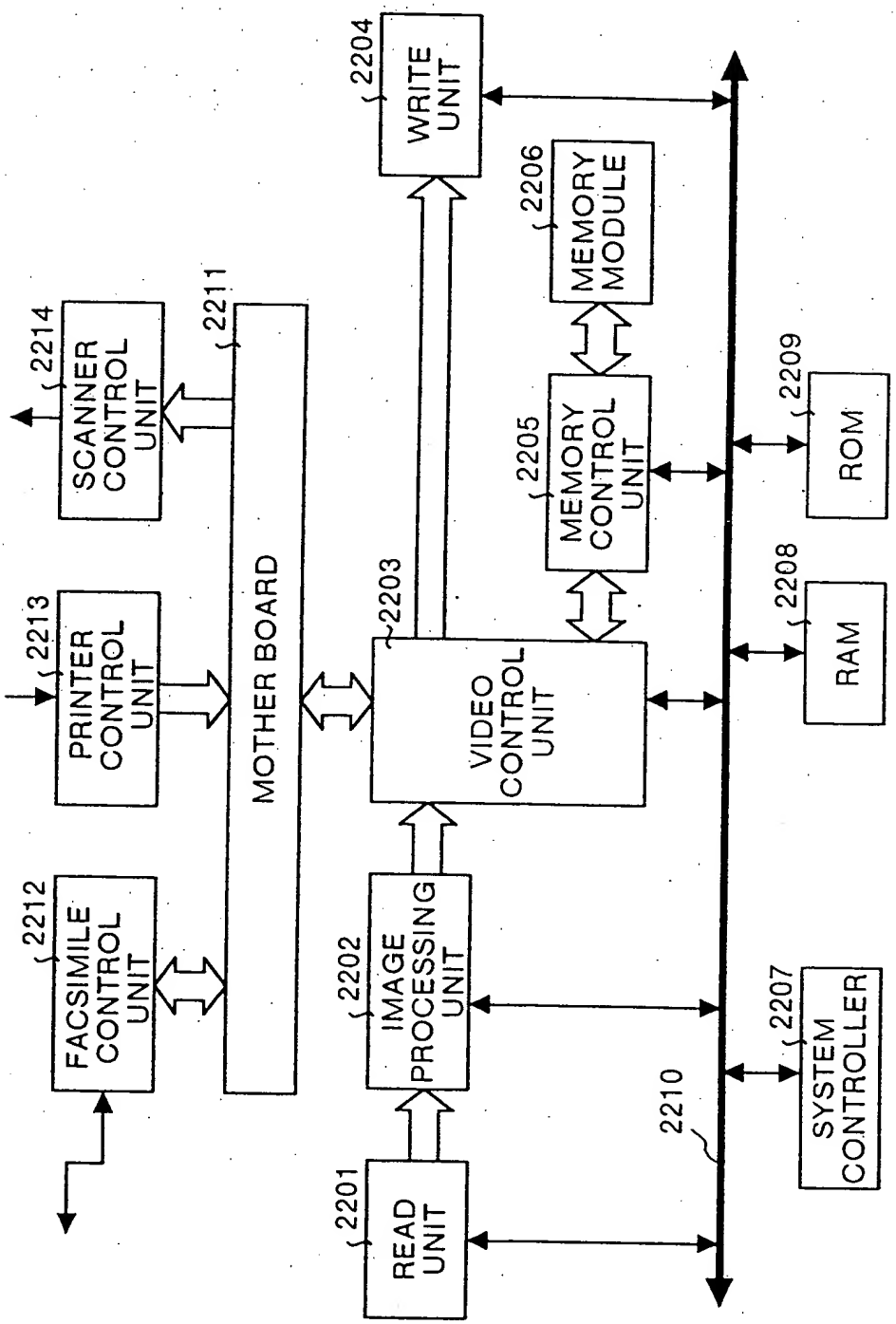

START
S2101
IMAGE DATA RECEIVED?
No
Yes
S2102
IMAGE DATA CONTROL INFORMATION AVAILABLE?
No
Yes
S2103
INPUT REQUEST
S2104
IMAGE DATA CONTROL INFORMATION INPUT?
No
Yes
ACQUIRE IMAGE DATA CONTROL INFORMATION
S2105
S2106
IS THE DESTINATION IMAGE MEMORY ACCESS CONTROL UNIT OR FAX CONTROL UNIT?
Yes
No
S2107
DESTINATION IS IMAGE PROCESSOR?
Yes
No
S2109
TRANSMIT TO IMAGE PROCESSOR
S2110
TRANSMIT TO VIDEO DATA CONTROL UNIT
S2108
TRANSMIT TO PARALLEL BUS
DESTINATION PROCESSING UNIT DETERMINATION STEP

FIG.22



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